

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

A1  
1. (Currently Amended) A reception method in a cellular radio system ~~comprising~~ including in each cell at least one base station communicating with terminals located in its area and in which system Code Division Multiple Access is employed, and in which method a received signal ~~comprises~~ includes a sum signal of signals originating from several transmitters, said signals ~~comprising~~ including symbols, the method comprising:  
performing and interference elimination and a simultaneous multi-user detection ~~are performed~~ to said received signal, including and generating ~~in which method~~ an estimate is ~~generated~~ for the received signal, ~~characterized in that~~ wherein the estimate ~~comprises~~ includes one or more estimates of a received user signal, and ~~that~~ the effect of the symbols estimated on the symbol level is subtracted from the received sum signal, whereby a narrowband, symbol-level residual signal is obtained.

SUB B' 2. (Currently Amended) A reception method in a cellular radio system comprising:  
in each cell, at least one base station communicating with terminals located in its area and in which system Code Division Multiple Access is employed, and  
wherein ~~in which method~~ a received signal ~~comprises~~ includes a sum signal of signals originating from several transmitters, and  
performing interference elimination and a simultaneous multi-user detection ~~are performed~~ to said received signal, including  
generating an estimate for the received signal, wherein the estimate includes one or more estimates of a received user signal, and the effect of the symbols estimated on the symbol level is subtracted from the received sum signal, whereby a narrowband, symbol-level residual signal is obtained ~~characterized in that an estimate comprises one or more estimates of a received user signal,~~  
correlating ~~and that~~ the received sum signal is ~~correlated~~ by a particular spreading code, whereby a first symbol-level signal is obtained,

correlating and that the computed estimate is ~~correlated~~ by the same spreading code, whereby a second symbol-level signal is obtained, and

subtracting that the second symbol-level signal is ~~subtracted~~ from the first symbol level signal, whereby a narrowband, symbol-level residual signal is obtained.

AI 3. (Currently Amended) A method as claimed in claim 1 or 2, ~~characterized in that~~ further comprising estimating the parameters of the unknown signals ~~are estimated~~ from the narrow-band residual signal.

4. (Currently Amended) A method as claimed in claim 1, ~~characterized in that~~ further comprising making a decision ~~whether new user signals have been found is made~~ by means of parameters.

SUB B' 5. (Currently Amended) A method as claimed in claim 3, ~~characterized in that~~ further comprising detecting by means of the estimated parameters the found signals ~~are detected~~ using the simultaneous multi-user detection.

6. (Currently Amended) A method as claimed in claim 1 or 2, ~~characterized in that~~ further comprising first conveying the ~~received~~ sum signal [is first conveyed] to a number of matched filters (206) in which the parameters of the known signals are estimated, and said known signals are conveyed to a detector (208) in which the simultaneous multi-user detection is performed.

7. (Currently Amended) A method as claimed in claim 6, ~~characterized in that~~ wherein the ~~signal~~ parameters comprise the signals' phase, amplitude and spreading code used.

8. (Currently Amended) A method as claimed in claim 6, ~~characterized in that~~ wherein the signal parameters are estimated in parallel.

9. (Currently Amended) A method as claimed in claim 6, ~~characterized in that~~ wherein the signal parameters are estimated sequentially.

10. (Currently Amended) A method as claimed in claim 6, ~~characterized in that~~ further comprising, when some parameters of the unknown signals are known, these data are utilized when other parameters are searched.

11. (Currently Amended) A method as claimed in claim 1 or 2, ~~characterized in that wherein~~ the residual signal comprises user symbols and the method further comprises combining that the symbols are ~~combined~~ incoherently.

12. (Currently Amended) A method as claimed in claim 1 or 2, ~~characterized in that wherein~~ the residual signal comprises user symbols and the method further comprises combining that the symbols are combined coherently.

13. (Currently Amended) A method as claimed in claim 1 or 2, ~~characterized in that further comprising estimating~~ the parameters ~~are estimated~~ in several stages in such a manner that preliminary estimates are searched first, whereupon a more accurate, final estimate is estimated from among the found, preliminary estimates.

14. (Currently Amended) A receiver in a cellular radio system including ~~comprising~~ in each cell at least one base station communicating with terminals located in its area, in which system method a received signal ~~comprises~~ includes a sum signal of signals originating from several transmitters, said receiver comprising:

means (208) for performing interference elimination and a simultaneous multi-user detection to the received signal, and

means (210) for searching signal parameters, ~~characterized in that the receiver further comprises~~

means (210) for removing the an effect of the signals of the known users from the ~~received symbol-level~~ sum signal, and

means (210) for estimating the parameters of the unknown signals from a narrowband residual signal, whereby a narrowband, symbol-level residual signal is obtained.

15. (Currently Amended) A receiver as claimed in claim 14, ~~characterized in that the receiver further comprises~~ further comprising means (208) for removing, by means of the estimated parameters, ~~the an~~ effect of the found signals from the received signal.

16. (Currently Amended) A receiver as claimed in claim 14, ~~characterized in that~~  
~~the receiver further comprises~~ further comprising means (208) for detecting, by means of the  
estimated parameters, ~~the~~ found signals, using the simultaneous multi-user detection.

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